

Phanomerus brevirostris, sp. n.

♂ ♀. Colouring similar to that of *P. angulicollis*, but the pale scales more generally distributed, so that the dark patch on the prothorax is indistinct and those on the elytra are very much reduced.

Head with close shallow punctures, the forehead broad, about twice the breadth of the funicle. *Rostrum* unusually short and stout, the thickened basal portion forming half (♀) or more than half (♂) its length, and bearing two or four shallow furrows, the apical area smooth and sparsely punctate; the scrobe continued to well beyond the middle in both sexes, but without any distinct furrow above it. *Antennæ* short, all the joints of the funicle except the first very strongly transverse, the club shorter and more obtuse than in *P. sundewalli*. *Prothorax* about twice as long as broad, parallel-sided from the base to beyond the middle, thence narrowing gradually to the apex, the upper surface simply reticulate, the punctures not coalescing longitudinally, with an indistinct central costa. *Elytra* cylindrical, very slightly broader than the prothorax, with coarsely punctate striæ, the dorsal intervals narrow, subcarinate, and crenulate. *Legs* as in *P. sundewalli*, except that the hind femora are much shorter, extending only a short distance beyond the apex of the elytra, the basal stem is more rapidly widened, and the large tooth is more deeply sinuate at the base of its posterior edge, so that the edge is distinctly angulated in the middle.

Length 3, breadth $\frac{3}{4}$ mm.

UNITED PROVINCES: Khairabenda, Khashi Forest, 29. xi. 1913 (C. F. C. Beeson).

This species can be readily distinguished from both *P. sundewalli* and *P. angulicollis* by its short rostrum and hind femora, and its broad forehead. Found in burrows in dead sal-tree (*Shorea robusta*). Mr. Beeson informs me that all the three species of *Phanomerus* mentioned here occurred in burrows of Scolytidæ &c., and he is of opinion that they are predaceous upon those beetles.

XIV.—*A Revision of the Clupeid Fishes of the Genus Pellonula and of Related Genera in the Rivers of Africa.* By C. TATE REGAN, M.A.

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PELLONULA and its allies are distinguished from *Clupea*, *Sardinella*, &c., by the stronger dentition and by the absence of the anterior supramaxillary bone.

Synopsis of the Genera.

I. Abdominal scutes sharply keeled; præmaxillary teeth rather strong.

A. Lower jaw not or but little projecting; anterior mandibular teeth enlarged, but no strong canines in either jaw.

1. D. 16-18, above or just behind pelvics. A. 16-21. Scales about 45/11-15. Vertebrae 42-43. Supramaxillary large.

1. *Pellonula*.

2. D. 12-14, above interspace between pelvics and anal.

A. 20-21. Scales 33/8. Vertebrae 43 2. *Pæcilothrissa*.

A. 21-25. Scales 38-42/10-12. Vertebrae 39-40. 3. *Microthrissa*.

3. D. 13-14, above pelvics. A. 17-18, far behind dorsal. Scales 40-44/10. Vertebrae 42. Supramaxillary small.

4. *Potamothrissa*.

B. Lower jaw strongly projecting.

Præmaxillaries with an inner series of 2 or 3 strong canine-like teeth on each side; anterior teeth of lower jaw enlarged. 5. *Cynothrissa*.

Præmaxillary teeth uniserial, with a canine on each side; lower jaw with a pair of strong anterior canines 6. *Odaxothrissa*.

II. Abdominal scutes in front of pelvic fins feebly keeled; præmaxillary teeth small.

Maxillary narrow proximally and expanded distally; tongue and palate toothless 7. *Stolothrissa*.

Maxillary broad throughout its length; a patch of teeth on each palatine and a strip on tongue 8. *Limnothrissa*.

1. PELLONULA, Günth. 1868.

Cat. Fish. vii. p. 452.

Form elongate, compressed; abdomen sharp-edged. Mouth moderate, terminal, with the lower jaw a little projecting; upper jaw without median notch; maxillary of a narrow proximal and an expanded distal part; in front of the narrow part a ligament runs from the end of the præmaxillary to the broad part of the maxillary; a single well-developed supra-maxillary. Teeth in jaws uniserial, conical, acute; præmaxillary teeth rather strong, unequal, without well-marked canines; mandibular teeth enlarged anteriorly; maxillary teeth minute; a patch of conical teeth on each palatine; an elongate patch of small teeth on tongue. 6 branchiostegals. Scales with entire edges, moderate, in a longitudinal series one to each myotome; ventral scutes sharply keeled and acutely pointed, commencing on or behind the thoracic keel formed by the hypocoracoids. Dorsal of 16-18 rays, anal of 16-21. Pelvics 8-rayed, below or a little in advance of dorsal. Vertebrae 42 or 43. A bluish-silvery lateral band.

Pellonula modesta, Fischer (Jahrb. Hamb. Wiss. Anst. ii. 1885, p. 75), from Eloby, is placed by Boulenger in the synonymy of *P. vorax*, but unless the description is quite incorrect (teeth in jaws minute, tongue and palate toothless, no lateral band, &c.) it is not a *Pellonula* at all, and is most likely a *Sardinella*.

A species from the coast of Brazil, described by Steindachner as *Pellonula bahiensis* (Sitzungsb. Akad. Wien, lxxx. 1, 1880, p. 181, pl. iii. fig. 2), of which *Sardinella pernambucana*, Schreiner & Ribeiro (Arch. Mus. Rio Janeiro, xii. 1903, p. 72), appears to be a synonym, evidently belongs to the genus *Heringia*, Fowler, 1911 (*Rhinosardinia*, Eigenmann, 1912), the type of which is *H. amazonica*, Steind., from the Amazon and Guiana.

Synopsis of the Species.

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| 26-30 gill-rakers on lower part of anterior arch. Depth 3 to 4 in the length; caudal peduncle as long as deep | 1. <i>vorax</i> . |
| 27 gill-rakers on lower part of anterior arch. Depth 5 in the length; caudal peduncle a little longer than deep | 2. <i>leonensis</i> . |
| 33 gill-rakers on lower part of anterior arch. Depth 4 in the length; caudal peduncle $1\frac{1}{2}$ as long as deep . | 3. <i>stanleyana</i> . |

1. *Pellonula vorax*.

Pellonula vorax, Günth. Cat. Fish. vii. p. 452 (1868).

Pellonula vorax (part.), Bouleng. Cat. Afr. Fish. i. p. 156, fig. 124 (1909).

Depth of body 3 to 4 in the length, length of head $3\frac{1}{2}$ to $4\frac{1}{2}$. Snout nearly equal to diameter of eye, which is 3 to $3\frac{3}{4}$ in length of head; maxillary extending to below anterior margin or anterior part of eye; lower jaw a little projecting. 26 to 30 gill-rakers on lower part of anterior arch. About 45 scales in a longitudinal series, 14 in a transverse series; ventral scutes 13-15 + 8-10. Dorsal 16-18; origin equidistant from end of snout and base of caudal, or nearer snout. Anal 18-21. Pelvics varying somewhat in position, rarely entirely below the dorsal, sometimes entirely in advance of it. Caudal peduncle as long as deep. Vertebrae 42.

West Africa, from the Senegal to Angola.

Numerous examples, measuring up to 140 mm. in total length.

This species may occur in the Lower Congo, but none of the specimens from the Congo enumerated by Boulenger belongs to it; I refer specimens 18 and 19 to *Cyanothrisa*

ansorgii, 20-23 and 24-25 to *Microthrissa parva*, 26 to *Potamothrissa acutirostris*, 27 and 28 to *Pacilothrissa congica*, and 29 and 30 to *Pellonula stanleyana*.

2. *Pellonula leonensis*.

Pellonula leonensis, Bouleng. Cat. Afr. Fish. iv. p. 172, fig. 111 (1916).

Depth of body 5 to $5\frac{1}{3}$ in the length, length of head $3\frac{3}{4}$ to 4. Snout nearly as long as diameter of eye, which is 3 in length of head; maxillary extending to below anterior $\frac{1}{4}$ of eye; lower jaw a little projecting. 27* gill-rakers on lower part of anterior arch. 45 scales in a longitudinal series, 11 or 12 in a transverse series; ventral scutes 13-14+8-9. Dorsal 16; origin equidistant from end of snout and base of caudal. Anal 16-17. Pelvics below origin or anterior rays of dorsal. Caudal peduncle a little longer than deep.

Sierra Leone.

Two specimens, 57 mm. long, from the North Sherbo District.

3. *Pellonula stanleyana*, sp. n.

Pellonula vorax (part.), Bouleng. Cat. Afr. Fish. i. p. 156 (1909).

Depth of body 4 in the length, length of head $4\frac{1}{4}$. Snout as long as diameter of eye, which is $3\frac{1}{3}$ in length of head; maxillary extending to below anterior margin of eye; lower jaw a little projecting. 33 gill-rakers on lower part of anterior arch. 45 scales in a longitudinal series, 14 in a transverse series; ventral scutes 14+9. Dorsal 16-17; origin nearer to end of snout than to base of caudal. Anal 18. Pelvics below anterior rays of dorsal. Caudal peduncle $1\frac{1}{2}$ as long as deep. Vertebrae 43.

Stanley Falls.

Two specimens, 110 mm. in total length; one of these is a skeleton, but I have been able to count the gill-rakers.

2. PÆCILOTHRISSE, gen. nov.

Closely related to *Pellonula*, differing in that the scales in a longitudinal series are less numerous than the myotomes, the supramaxillary bone is rather small, and the tongue is toothless. Dorsal fin of 13 rays, above the interspace between pelvics and anal, the last with 20-21 rays. Scales $33/8$. Vertebrae 43.

* I find 27 gill-rakers on the lower part of the anterior arch in each of the type-specimens, which I have examined under a binocular microscope.

Pœcilothrissa congica, sp. n.

Pellonula vorax (part.), Bouleng. Cat. Afr. Fish. i. p. 156 (1909).

Depth of body 4 in the length, length of head $4\frac{1}{4}$. Snout a little shorter than diameter of eye, which is $2\frac{3}{4}$ in length of head; jaws equal anteriorly; maxillary extending to vertical from anterior edge of eye; maxillary teeth quite distinct; 19 gill-rakers on lower part of anterior arch. 33 scales in a longitudinal series, 8 in a transverse series; ventral scutes 11-12 + 9-10. Dorsal 13; origin equidistant from end of snout and base of caudal. Anal 20-21. Pelvics well in advance of dorsal. Caudal peduncle longer than deep. Lateral band narrow, present only on posterior half of fish. Vertebrae 43.

Congo.

Two specimens, 55 and 60 mm. in total length, from Coquilhatville and from Mönsembe.

3. MICROTHRISSE, Bouleng. 1902.

Ann. Mus. Congo, Zool. ii. p. 26.

Scarcely generically distinct from *Pellonula*, but tongue toothless, dorsal fin of 12-14 rays and anal of 21 to 25, and pelvics in advance of dorsal. Scales 38-42/10-12. Vertebrae 39-40.

1. *Microthrissa parva*, sp. n.

Pellonula vorax (part.), Bouleng. Cat. Afr. Fish. i. p. 156 (1909).

Depth of body 4 to 5 in the length, length of head about 4. Snout a little shorter than diameter of eye, which is rather more than $\frac{1}{2}$ the length of head; maxillary extending to vertical from anterior edge of eye; lower jaw a little projecting. 26 or 27 gill-rakers on lower part of anterior arch. 40 to 42 scales in a longitudinal series, 10 or 11 in a transverse series; ventral scutes 12-13 + 7-8. Dorsal 12-14; origin nearly equidistant from end of snout and base of caudal. Anal 21-23, not extending forward to below dorsal. Pelvics in advance of dorsal. Caudal peduncle longer than deep. 40 vertebrae.

Upper Congo.

Two specimens of 40 mm. from Coquilhatville and three of 30 mm. from the Tumba Lake.

2. *Microthrissa royauvi*.

Microthrissa royauvi, Bouleng. Ann. Mus. Congo, ii. 1902, p. 26, and Cat. Afr. Fish. i. p. 161, fig. 129 (1909).

Depth of body $3-3\frac{1}{2}$ in the length, length of head 4. Snout shorter than diameter of eye, which is 3 in length of head; jaws equal anteriorly; maxillary with minute teeth, extending to below anterior margin of eye; 14 gill-rakers on lower part of anterior arch. 38 to 40 scales in a longitudinal series, 12 in a transverse series; ventral scutes 12-13 + 6-7. Dorsal 13; origin equidistant from end of snout and base of caudal, behind the 8-rayed pelvics. Anal 23 (-25), extending forward nearly to below end of dorsal. Caudal peduncle a little deeper than long. 39 vertebræ.

Ubanghi R.

One of the types, 55 mm. in total length, from Banzyville.

4. POTAMOTHRISSE, gen. nov.

Closely related to *Pellonula*, but maxillary narrow, supra-maxillary bone quite small, and no teeth on tongue or on maxillary. Dorsal fin of 13 or 14 rays, placed well forward, its origin much nearer to end of snout than to base of caudal, above or in advance of first ray of pelvics; anal of 17 or 18 rays, far behind dorsal. Scales 40-44/10. Vertebræ 42.

1. *Potamothrissa obtusirostris*. (Fig. 1, 2.)

Pellonula obtusirostris, Bouleng. Cat. Afr. Fish. i. p. 158, fig. 126 (1909).

Jaws equal anteriorly. 16 gill-rakers on lower part of anterior arch. Ventral scutes 9-10 + 9-10.

Aruwimi River, Congo.

Two specimens, 72 mm. in total length.

2. *Potamothrissa acutirostris*.

Pellonula acutirostris, Bouleng. Cat. Afr. Fish. i. p. 159, fig. 127 (1909).

Lower jaw shorter than upper. 19 gill-rakers on lower part of anterior arch. Ventral scutes 12-13 + 10-12.

Upper Congo.

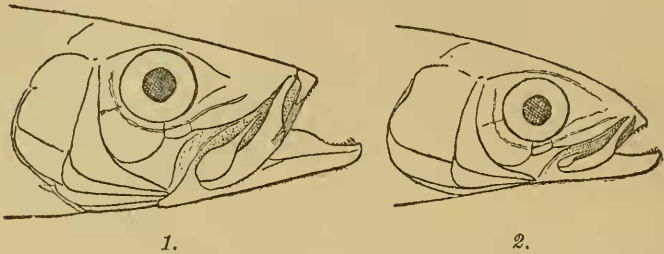
Five specimens, up to 75 mm. in total length.

5. CYNOTHRISSE, gen. nov.

Differs from *Pellonula* in the very prominent lower jaw and in the presence of an inner series of præmaxillary teeth,

comprising 2 or 3 strongly enlarged teeth on each side. Vertebrae 42.

Fig. 1.



Heads of 1. *Cynothrissa mento*, 2. *Potamothrissa obtusirostris* ($\times 2\frac{1}{2}$).

1. *Cynothrissa mento*, sp. n. (Fig. 1, 1.)

Pellonula vorax (part.), Bouleng. Cat. Afr. Fish. i. p. 156.

Depth of body 4 in the length, length of head (without lower jaw) $3\frac{2}{3}$. Snout longer than diameter of eye, which is $3\frac{3}{4}$ in length of head; maxillary extending to below anterior $\frac{1}{3}$ of eye. 19 gill-rakers on lower part of anterior arch. About 45 scales in a longitudinal series, 14 in a transverse series; ventral scutes 15+9. Dorsal 17; origin above base of pelvis, equidistant from end of snout and base of caudal. Anal 21. Caudal peduncle longer than deep.

Nigeria.

A single specimen, 130 mm. in total length, from Agberi, Southern Nigeria.

This new species is distinguished from *C. ansorgii* by the more slender form, fewer gill-rakers, and more numerous anal rays.

2. *Cynothrissa ansorgii*.

Pellonula vorax (part.), Bouleng. Cat. Afr. Fish. i. p. 156 (1909).

Odaothrissa ansorgii, Boulenger, *op. cit.* iv. p. 172, fig. 112 (1916).

Depth of body 3 to $3\frac{1}{2}$ in the length, length of head (without lower jaw) $3\frac{2}{5}$ to 4. Snout as long as or longer than diameter of eye, which is 3 to 4 in length of head; maxillary extending to below anterior $\frac{1}{3}$ or middle of eye. 23 to 25 gill-rakers on lower part of anterior arch. 42 to 45 scales in a longitudinal series, 14 or 15 in a transverse series; ventral scutes 13-16+9-11. Dorsal 15-17; origin

above or immediately behind base of pelvics, nearly equidistant from base of caudal and end of snout. Anal 17-19. Caudal peduncle as long as deep. Vertebrae 42.

Lower Congo and Angola.

Nine specimens, 110 to 160 mm. long, including the types from Angola and two from Boma and from Vivi, Lower Congo.

6. ODAXOTHRISSA, Bouleng. 1899.

Differs from *Pellonula* in the very prominent lower jaw, with a pair of strong canines anteriorly; præmaxillary teeth uniserial, with a canine on each side.

1. *Odaxothrissa vittata*, sp. n.

Odaxothrissa losera (part.), Bouleng. Cat. Afr. Fish. i. p. 160 (1909).

Depth of body $4\frac{1}{4}$ in the length, length of head $3\frac{2}{5}$. Snout longer than diameter of eye, which is $\frac{1}{2}$ in length of head; maxillary extending to below middle of eye; canines very strong. Gill-rakers shorter than gill-filaments, 22 or 23 on lower part of anterior arch. 45 scales in a longitudinal series, 14 in a transverse series; ventral scutes 12+9. Dorsal 16; origin a little nearer base of caudal than end of snout, immediately behind base of pelvics. Anal 21. Caudal peduncle $1\frac{1}{3}$ as long as deep. A well-defined silvery lateral band.

Ubanghi River.

A single specimen, 110 mm. long, from Banzyville.

2. *Odaxothrissa losera*.

Odaxothrissa losera, Bouleng. Ann. Mus. Congo, Zool. i. 1899, p. 64, pl. xxxi. fig. 1.

Depth of body equal to or a little less than length of head, which is $3\frac{1}{2}$ in the length of fish. Snout a little longer than diameter of eye, which is $3\frac{2}{3}$ to $4\frac{1}{3}$ in length of head; maxillary extending to below anterior $\frac{1}{3}$ or middle of eye. 27 gill-rakers on lower part of anterior arch. 44 to 46 scales in a longitudinal, 14 in a transverse series; ventral scutes 11+9. Dorsal 16-17; origin equidistant from end of snout and base of caudal, immediately behind base of pelvics. Anal 21-22. Caudal peduncle as long as deep. Lateral band vestigial.

Upper Congo.

The above description is based on one of the types, a specimen of 85 mm. from Coquilhatville, and on the figure of the larger type-specimen, 160 mm. long. In the smaller fish the gill-rakers are rather longer than the gill-filaments, but in the larger they are said to be much shorter and to number only 18 on the lower part of the anterior arch; this may be a misprint for 28, or possibly in the adult the anterior gill-rakers may be vestigial.

7. *STOLOTHRIS*, gen. nov.

Mouth formed as in *Pellonula*, but teeth in jaws quite small and no teeth on palate or tongue. Abdomen in front of pelvic fins rounded, with the scutes but weakly keeled; scutes behind pelvic fins strongly keeled and acutely pointed. Vertebrae 44.

Stolothrissa tanganica, sp. n. (Fig. 2, 2.)

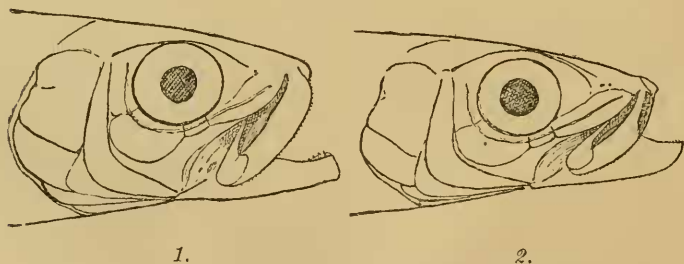
Pellonula miodon (part.), Bouleng. Cat. Afr. Fish. i. p. 157 (1909).

Depth of body about 6 in the length, length of head $3\frac{1}{2}$ to 4. Snout rather longer than diameter of eye, which is $3\frac{1}{2}$ in length of head; maxillary not or barely reaching vertical from anterior margin of eye; lower jaw slightly projecting. 40 to 42 gill-rakers on lower part of anterior arch. About 45 scales in a longitudinal and 13 in a transverse series; ventral scutes 13-14+8-9. Dorsal 15; origin nearly equidistant from end of snout and base of caudal, Anal 17. Pelvics below or a little in advance of middle of dorsal. Lateral band broad.

Tanganyika.

Four specimens, 80 to 95 mm. in total length, from Vua and Ndanvie.

Fig. 2.



Heads of 1. *Limnothrissa miodon*, 2. *Stolothrissa tanganica* ($\times 2$).

8. LIMNOTHRISSA, gen. nov.

Maxillary broad throughout its length, its dentigerous margin extending right up to the præmaxillary; latter with quite small teeth, but dentition of lower jaw, palatines, and tongue as in *Pellonula*. Abdomen in front of pelvic fins rounded, with scutes but weakly keeled; scutes behind pelvic fins strongly keeled and acutely pointed. Vertebrae 44.

Limnothrissa miodon. (Fig. 2, 1.)

Pellonula miodon (part.), Bouleng. Cat. Afr. Fish. i. p. 157, fig. 125 (1909).

Depth of body $4\frac{1}{2}$ in the length, length of head $3\frac{2}{3}$ to 4. Snout as long as diameter of eye, which is $3\frac{1}{3}$ in length of head; maxillary extending to below anterior $\frac{1}{4}$ of eye; lower jaw slightly projecting. 31 to 33 gill-rakers on lower part of anterior arch. About 45 scales in a longitudinal and 14 in a transverse series; ventral scutes 13-14+10-11. Dorsal 15; origin equidistant from end of snout and base of caudal. Anal 16-18. Pelvics below middle or anterior part of dorsal. Lateral band broad.

Tanganyika.

Four specimens, 100 to 140 mm. in total length, from Ndanvie, Tembwi, and Kasakalewa; also some young examples not included in the description.

XV.—*New Species of Tabanidæ from Australia and the Fiji Islands.* By GERTRUDE RICARDO.

THE identification of species and descriptions of new species contained in this paper are from specimens forwarded to Mr. Marshall by Dr. E. W. Ferguson and Dr. J. Burton Cleland.

One new species from the Fiji Islands, the type being in the British Museum Coll., is included. The types of all the new species will be presented to the British Museum by the Imperial Institute of Economic Entomology, with the exception of a few species belonging to the South Australian Museum and the National Museum, Victoria; in these cases, paratypes are kept for the British Museum.